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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/979,566	06/28/2002	Alison Mary Fairhurst	1084-011969	2819

7590 08/23/2004

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EXAMINER
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WANG, GEORGE Y

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/979,566

Applicant(s)

FAIRHURST ET AL.

Examiner

George Y. Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-15,20,35-37 and 39-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-15,20,35-37 and 39-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 10, 12-13, 20, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Gunjima et al. (U.S. Patent No. 5,587,816, from hereinafter "Gunjima").

3. Regarding claims 10, 12, and 20, Gunjima discloses an LCD (fig. 6, ref. 41) incorporating a light-transmitting element (fig. 3, ref. 7) having a surface relief or texturing to eliminate or reduce reflections (col. 10, lines 54-63) and another surface which is stepped to form a Fresnel refracting arrangement (fig. 3, ref. 3; col. 10, lines 64-68).

4. As to claims 13 and 35, Gunjima discloses the LCD as recited above where the element has one surface which is stepped and is rendered at least partially light-reflecting to form a Fresnel reflecting arrangement (col. 10, lines 54-63).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 11, 14-15, 36-37, and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gunjima et al. (U.S. Patent No. 5,587,816, from hereinafter "Gunjima") in view of Van De Ven (U.S. Patent No. 4,911,529, from hereinafter "Van De Ven").

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7. As per claim 11, Gunjima discloses the LCD as recited above, however, the reference fails to teach that the light-transmitting element forms the surface of the display which is closest to the viewer.

Van De Ven discloses an LCD display with a light-transmitting element forms the surface of the display which is closest to the viewer (fig. 1, ref. 13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the a light-transmitting element forming the surface of the display closest to the viewer since one would be motivated to increase the ambient light at the edges, resulting in a reduction of the deterioration of the contrast in the observed image due to reflected ambient light than in the known screen (col. 1, lines 52-68).

8. Regarding claims 14 and 36, Gunjima discloses the LCD as recited above, however, the reference fails to teach that the individual portions or facets of the stepped surface are convexly or concavely curved.

Van De Ven discloses an LCD display with a light-transmitting element where the individual portions or facets of the stepped surface are convexly or concavely curved (fig. 3, ref. 122; col. 5, lines 9-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the individual portions or facets of the stepped surface as convexly or concavely curved since one would be motivated to create angular distribution of the light (col. 5, lines 2-7). Such a spreading is much better controlled and spreading outside the audience space is suppressed (col. 5,

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lines 2-7). Ultimately, this reduces uneven distribution and thereby enhances display quality (col. 4, lines 63-65).

9. As to claims 15 and 37, Gunjima discloses the LCD as recited above, however, the reference fails to teach the light-transmitting material being characterized by refractive index variations and forming light-deviating features imparting bulk light-diffusing properties to the material.

Van De Ven discloses an LCD display where the light-transmitting material is characterized by refractive index variations and forms light-deviating features imparting bulk light-diffusing properties to the material (col. 4, lines 52-61).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the light-transmitting material being characterized by refractive index variations and forming light-deviating features imparting bulk light-diffusing properties to the material since one would be motivated to spread light (col. 4, lines 55-62). Furthermore, bulk diffusion creates the spreading of light uniformly in all directions that has advantages in high resolution and sharp images (col. 2, lines 48-56; col. 3, lines 1-6).

10. As per claim 39 and 40, Gunjima discloses an LCD cell (fig. 3, ref. 11) with upper (fig. 3, ref. 10) and lower (fig. 3, ref. 9) transparent plates superimposed on a plate having a first and second body of light-transmitting material (fig. 3, ref. 3) having a planar upper face parallel with the upper and lower plates of the LCD cell (fig. 3, ref. 12) and having a Fresnel-stepped or ramped lower surface (fig. 3,

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ref. 7) provided with a semi-reflective or transflective coating, the plate being disposed between the LCD cell and a backlighting (fig. 3, ref. 1) assembly arranged to direct light towards the cell perpendicularly

However, the reference fails to specifically disclose ambient light incident on the LCD cell at an angle to the perpendicular to the upper and lower plates and passes through the cell to the plate to be reflected by the semi-reflective coating.

Van De Ven discloses an LCD display with a Fresnel-stepped lower surface which is provided with a semi-reflective or transflective coating where ambient light is incident on the LCD cell at an angle to the perpendicular to the upper and lower plates and passes through the cell to the plate to be reflected by the semi-reflective coating (fig. 3; col. 4, lines 20-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a Fresnel-stepped lower surface which is provided with a semi-reflective or transflective coating where ambient light is incident on the LCD cell at an angle to the perpendicular to the upper and lower plates and passes through the cell to the plate to be reflected by the semi-reflective coating since one would be motivated to increase the angle from the center of the edge of the plate to provide correction for the audience space (col. 26-33). The result is a high contrast projection image for useful display applications (col. 3, lines 28-41).

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11. As to claim 41, Gunjima discloses the LCD as recited above with a second body of light-transmitting material that is the same reflective index as the first body (col. 21, lines 6-14).

### ***Response to Arguments***

12. Applicant's arguments filed June 2, 2004 have been fully considered but they are not persuasive.

Applicant main argument is that the Gunjima reference does not teach the incorporation of a light transmitting element and asserts that the prisms are distinct from the LCD. Furthermore, Applicant argues that the prior art reference fails to disclose a stepped or ramped Fresnel on another surface. However, Examiner disagrees. It is clear that the Gunjima reference discloses that the light transmitting element is part of the same LCD device as depicted in Fig. 3 and 6. In addition, the reference clearly discloses a stepped Fresnel shape formed on the face of the light guide portion of the element and on the prism (See Rejection – fig. 3, 6; col. 10, ref. 54-68).

Thus, Examiner holds to the validity of the references used and maintains rejection.

### ***Conclusion***

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).



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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 571-272-2304. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gw  
August 16, 2004



TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER